

REMARKS

Entry of the foregoing and further and favorable reconsideration of the subject application in view of the following remarks and pursuant to 37 C.F.R. § 1.116, are respectfully requested.

By the foregoing amendment, claims 31 and 32 have been canceled, without prejudice or disclaimer to the subject matter disclosed therein. Applicants of course reserve the right to pursue the subject matter of the canceled claims in a continuation application. Furthermore, claim 1 has been amended to recite that the microorganism produces arachidonic acid. No new matter has been added by the foregoing amendment.

Rejection of Claims 1, 31 and 32 Under 35 U.S.C. § 112, Second Paragraph

Claims 1 and 32 have been rejected under 35 U.S.C. § 112, second paragraph, for purportedly claiming the same subject matter. By the foregoing amendment, claim 32 has been canceled, thereby rendering this rejection moot.

Claim 31 is purportedly indefinite. Claim 31 has been canceled by the foregoing amendment, without prejudice or disclaimer to the subject matter disclosed therein, thereby rendering this rejection moot.

In light of these remarks, applicants respectfully request withdrawal of this rejection under 35 U.S.C. § 112, second paragraph.

Rejection of Claims Under 35 U.S.C. §§ 102(b) and 103(a)

Claims 1, 3, 5, 6 and 31-32 have been rejected under 35 U.S.C. § 102(b) for purportedly being anticipated by Kyle, and claims 1, 3-7 and 31-32 have been rejected under 35 U.S.C. § 103(a) for purportedly being unpatentable over Kyle. For at least all of the reasons set forth below, withdrawal of this rejection is believed to be in order.

The claims have been amended to recite that the microorganism produces arachidonic acid of at least about 7 g/L. Thus, the claimed invention is now drawn to a process for producing arachidonic acid or lipid containing arachidonic acid comprising culturing a microorganism belonging to the genus *Mortierella*, wherein the process results in the production by the microorganism of at least 7 g/L of arachidonic acid. This process involves culturing the microorganism in a medium containing at least 4% carbon source at the start of culturing and at least 2% nitrogen source at the start of culturing, and culturing is carried out for 5 to 10 days with agitation and aeration. See the results of Example 2, wherein a culture medium having 6% glucose provided 7.1 g/L arachidonic acid; a culture medium having 8% glucose provided 9.8 g/L arachidonic acid; and a culture medium having 11% glucose provided 14.3 g/L arachidonic acid, all with 8 days of culturing.

Kyle does not disclose each of the aspects of the claimed invention, and therefore does not anticipate nor render obvious the claimed invention. Specifically, Kyle discloses a maximum productivity of arachidonic acid of 5.3 g/L in 10 days of culturing. See Example 7, wherein *Mortierella alpina* was cultured for about 10 days (237 hours/24 hours), and 1.05 g/L/day of oil was produced, and the arachidonic acid content in the oil was 51.2%, which corresponds to 5.3 g/L of arachidonic acid produced. Thus, Kyle does

not disclose or suggest a process of producing arachidonic acid wherein culturing of a microorganism results in production of at least 7 g/L of arachidonic acid in 5 to 10 days. Therefore, Kyle does not anticipate or render obvious the present invention.

Newly added claim 33 is also not anticipated by or obvious in view of Kyle. Claim 33 specifies that the aeration of the culture is done at at least about 1 vvm. In Kyle, the culture is performed "air sparging." See claim 1. See also Example 7, column 17, lines 19-26, wherein the aeration rate is initially 0.15 vvm, and then increased to 0.5 vvm.

In light of these remarks, applicants respectfully request withdrawal of these rejections under 35 U.S.C. §§ 102(b) and 103(a).

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

In the event that there are any questions relating to this application, the Examiner is invited to telephone the undersigned attorney so that prosecution of the subject application may be expedited.

Respectfully submitted,

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Marked-up Claim 1

1. (Three Times Amended) A process for producing arachidonic acid or lipid containing arachidonic acid comprising the steps of culturing a microorganism, belonging to the genus *Mortierella* and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing, thereby forming archidonic acid or lipid containing arachidonic acid and recovering arachidonic acid, wherein the microorganism [has an ability to produce] produces arachidonic acid of at least about 7 g/L when cultured in a medium containing at least about 4% carbon source at the start of culturing and at least about 2% nitrogen source at the start of culturing for about 5 to 10 days with agitation and aeration.